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Personality Factors And The Type A Behavior Pattern In College Students

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PERSONALITY FACTORS AND THE TYPE A BEHAVIOR PATTERN IN COLLEGE STUDENTS

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Personality Factors and the Type A Behavior Pattern in College Students

(TITLE)

BY

Karyn B. Cihak

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Abstract

Within health psychology a common area of research involves the Type A behavior pattern and its proposed link with coronary heart disease (CHD). Characteristics of Type A behavior as opposed to Type B include aggressiveness, hostility, a sense of time urgency, competitiveness, impatience and explosive speech. Research and theoretical work on the Type A construct have undergone a series of developments. Early research provided a large body of data concerning differences between Type A and Type B individuals in their responses to a variety of situations. The more fundamental underlying psychological processes involved have yet to be addressed. The relationship between Type A behavior and underlying personality characteristics or traits remains largely unexplored. The current study investigates the underlying personality factors of Type A behavior within a college aged population utilizing the Sixteen Personality Factor Questionnaire and the Jenkins Activity Survey (Form T). Significant differences were found on five of the 16 primary scales and four of the nine composite secondary scales of the 16PF. —Type As were found to be bold, dominant, warm, enthusiastic, shrewd, extroverted, independent, high on leadership and well adjusted. Overall, results suggested that Type A college students seem to score higher on personality variables that Western Society views positively.

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Chapter 1

Statement of the Problem

Recent research has increasingly indicated the importance of the role played by psychological factors in both the genesis and progression of physical disorders. While the influences of stress and attitudes on physical illness has been appreciated throughout this century, during the past decade a number of physical disorders have become topics of interest to both psychologists and medical researchers. Psychosomatic medicine, an interdisciplinary field, has grown from concern with the diagnosis and treatment of stress-connected disorders, to encompass a broader perspective, linking numerous areas of physical dysfunction and psychological factors. Interdisciplinary researchers have identified the Type A behavior pattern as a psychological factor involved in the genesis and progression of coronary heart disease (CHD).

Research and theoretical work on the Type A construct has undergone a series of developments. Originally identified as a risk factor for CHD, characteristics of Type A behavior as opposed to Type B include aggressiveness, hostility, a sense of time urgency, competitiveness, impatience and explosive speech (Jenkins, Zyzanski, & Rosenman, 1979). Western society may actually encourage the

Type A behavior pattern as it appears to offer rewards or opportunities to those who think, perform, and play more rapidly and aggressively than their peers (Friedman & Rosenman, 1974; Rosenman & Chesney, 1980). Thus, Type A behavior is neither a set of personality characteristics nor an invariant reaction elicited by a challenging situation (Jenkins, 1975). Rather it has been described as the "outcome of a set of predisposing interactions interacting with specific types of eliciting situations" (Mathews & Haynes, 1986, p. 924).

Early research involved several large-scale longitudinal studies that established a causal link between Type A behavior and CHD (Jenkins, Rosenman, & Zyzanski, 1979). These studies focused on empirical identification of a set of behavioral predictors for heart disease, rather than on developing a coherent theoretical model of Type A behavior. A large number of studies explored the various physiological factors, such as heightened cardiovascular and endocrinological reactivity to stress, which might account for increased vulnerability to heart disease (Martin, Kuiper, & Westra, 1989). While these investigations provided a large body of data concerning differences between Type A and B individuals in their responses to a variety of situations, they did not address the more fundamental underlying psychological processes involved. Thus the relationship between Type A behavior and underlying

personality characteristics or traits remains largely unexplored (Friedman & Booth-Kewely, 1987).

Only one study, with a sample of 222 adult men and women (mean age = 31), mapped the Type A behavior pattern onto the personality trait domain of the Sixteen Personality Factor Questionnaire (16PF) (Krug and Johns, 1986). An investigation of the underlying personality factors of Type A behavior within a college aged population utilizing the 16PF to date has not been conducted.

Purpose of the Study

The objective of this research is to determine if college students categorized as Type A have distinct identifiable personality characteristics. Since evidence exists to link Type A behavior with subsequent disease states, a scientific understanding of basic psychological characteristics underlying this behavior pattern may allow us to begin to treat causes instead of symptoms. Modification attempts focusing upon altering the overt symptoms of the Type A behavior pattern have met with only limited success. Effective intervention and prevention is likely to require a more complete understanding of the psychological disposition to CHD. Early identification and intervention of Type A behavior within a college aged population may help to prevent the development of CHD.

Chapter 2

Literature Review

Description and Assessment of the Type A Behavior Pattern

Within health psychology a common area of research involves the Type A behavior pattern and its proposed link with coronary heart disease (CHD). The Type A behavior pattern first described by cardiologists, Friedman and Rosenman (1974), characterizes a certain kind of individual who they believed to be over represented in their clinical practice. They defined Type A behavior pattern as a

> characteristic action-complex which is exhibited by those individuals who are engaged in a relatively chronic struggle to obtain an unlimited number of poorly defined things from their environment in the shortest period of time, and if necessary, against the opposing efforts of other things or persons in their environment (Friedman & Rosenman, 1969).

In service to such objectives, Type As often exhibit extremes of competitiveness, and aggression, and may be easily annoyed when progress is impeded (Mathews & Haynes, 1986). They are usually work oriented, often preoccupied with deadlines, and may experience a chronic sense of time

urgency. Individuals need not manifest all aspects of this profile to be classified as Type A; they must, however, display a predominance of these features.

Type Bs characteristicly exhibit the opposite behavior pattern, relaxed, unhurried, and satisfied. While the Type B person may also be interested in progress and achievement, they tend to "flow with the stream of life rather than constantly struggling against it" (Jenkins, Zyzanski, & Rosenman, 1979).

Assessment of Type A Pattern

Common methods of assessing the Type A behavior pattern found within the epidemiological literature include: Structured Interview (SI); Jenkins Activity Survey (JAS); Framingham Type A Scale (FTAS); and the Bortner Rating Scale (BRS). Considered to be the most accurate and reliable techniques currently available for assessing the Type A behavior pattern, each of these measures proved to be predictive of CHD (O'Looney, 1984).

The Structured Interview (SI), a systematic interview procedure developed by cardiologists, initially established criteria for measuring the Type A behavior pattern (Rosenman, Friedman, Straus, Wurm, Kositchek, Hahn, & Werthessen, 1964). Responding to 22 questions, individuals characterize their response to a variety of situations that

elicit impatience, hostility, and competitiveness. Criteria for judgement include: content, speed, volume, variability, and terseness of verbal style (Jenkins, Zyzanski, & Rosenman, 1979). Individuals also receive scores on patterns of posture, gesture, and facial and body movements. Results determine individual classification into one of the following categories: A1, a fully developed Type A; A2, an incompletely developed Type A; X, an equal representation of Type A and Type B; B3, an incompletely developed Type B; and B4, a fully developed Type B (Mathews & Haynes, 1986). Proper instruction and practice under the guidance of an experienced administrator are used to ensure proper administration and interpretation of the interview. Certain problems do occur with the SI. The technique results in a subjective and holistic assessment of the degree of Type A behavior that the individual exhibits during the interview, with no validated, objective, quantitative criteria existing for making the assessment. Consequently, the interview's reliability can be questioned.

Further problems stem from the training of interviewers and assessors. Subjects may be influenced by the interviewer's ability to ask questions and manipulate the interview. Scherwitz, Berton, and Leventhal (1977) conducted the only study that investigated the possible influences of the interviewer's behavior upon the respondent's behavior. In a reanalysis of recorded

interviews of male students, results suggested the subject's speech characteristics did not influence the interviewer's speech characteristics, although the interviewer did have an indirect effect upon the subject's vocal behavior.

Developed in a white, middle-class, disease free, male population, the appropriateness of the interview technique in different ethnic groups and cultures remains unestablished. The validity of the SI for women is also questionable (O'Looney, 1984).

In spite of several problems associated with the SI, the technique remains an important instrument in the measurement of Type A behavior. All other measures are compared with and evaluated against it. Due to the difficulties associated with the SI, attempts have been made to develop a more cost effective method of measuring the Type A behavior pattern. These attempts have produced several self-report measures of Type A behavior.

Self-Report Methods

The Jenkins Activity Survey (JAS) is the most frequently used self-report measure of Type A behavior. In a collaborative effort with Rosenman and Friedman, Jenkins strove to develop an instrument that would be convenient and cost effective, which duplicated the assessment of the Type A behavior achieved by using the SI (O'Looney, 1984; Byrne,

Rosenman, Schiller, & Chesney, 1985; Mathews & Haynes, 1986). Numerous editions or forms of the JAS exist, with each form varying in number of questions and the specific questions included. The fifth edition of the JAS, Form C, consists of 52 multiple choice items. Form C is easy to administer to both individuals and groups. Suitable candidates for administration must read at an eighth grade level or higher and be currently or recently employed. No time limit exists for administration but most subjects complete the JAS within 20 minutes.

The test is scored on four scales: (1) Type A scale, (2) Hard-Driving and Competitive, (3) Job Involvement, and (4) Speed and Impatience. The Type A scale assesses the overall clinical construct of the coronary prone behavior pattern. Factor analysis procedures revealed three independent components of this broader construct (Jenkins, Zyzanski, & Rosenman, 1979). The Hard-Driving and Competitive factor involves perceptions of oneself as being more competitive, responsible, serious, conscientious and hard-driving than other people. The Job Involvement factor expresses the level of dedication to one's occupation, while the Speed and Impatience factor deals with the extent of time urgency associated with one's behavior.

For items that contribute to a scale score, each alternative response is assigned numerical points based on the product of the item regression weight and the optimal

scaling weight for that response. Raw scores are obtained by summing the points for all the items in a particular scale. Two kinds of reliability, internal consistency and test-retest, have been computed for the JAS. The internal consistency reliability coefficients for the four JAS scales range from .73 to .85 and the test-retest reliabilities range from .68 to .76 after four to six month intervals (Jenkins, Zyzanski, and Rosenman, 1979; Byrne, Rosenman, Schiller, & Chesney 1985; Boyd, & Begley, 1987). While the reliabilities are acceptable when compared with other psychological tests, the test-retest figures suggest that the JAS may be less suitable for individual assessment but appropriate for making group comparisons.

The student version of the JAS developed by Glass (1977) differs from the original JAS in several ways. Items in the original JAS referring to income, job involvement, and job responsibility were eliminated or modified. These changes produced a 44 item questionnaire. Yarnold, Bryant, and Grimm (1987) compared the 44 item long form with a 21 item short form of the student JAS on the protocols obtained from 1248 undergraduates. Results indicate that the short form provides comparable factor structures for As and Bs as well as comparable distributions of scores. Selection of the 21 item form of the student JAS as the measure of choice for the current study attempts to minimize subject fatigue.

The student JAS utilized unit-weighting procedures for

scoring. For each of the 21 items on the A-B scale, the endorsed "A" responses receive a score of one while the endorsed "B" items receive a score of zero. The sum of the 21 items constitute the A-B scale score. The characteristic range of scores is between 0 and 18, the median scores for college-aged males falls between 7 and 8, while the median score for college-aged females often occurs between 6 and 7 (Glass, 1977).

Two factors emerge with application of the procedures used in factor analyses of the adult version of the JAS to the student version, which include a principle axes solution and varimax rotation (Glass, 1977; O'Looney, 1984; Fekken, Jackson, & Holden, 1985; Yarnold, Bryant, & Grimm, 1987; Bryant & Yarnold, 1989). These two factors are labeled as (1) Hard-Driving and Competitive, and (2) Speed and Impatience. Eliminated or modified job-related items in the student version make no corresponding factor score for the Job Involvement factor possible.

Since the student and adult versions of the test differ only slightly, the psychometric properties of the tests are similar. Several studies have investigated the reliability of the student JAS. Test-retest reliability of the student JAS total scores and for the Speed and Impatience, and Hard-Driving and Competitive factors range from moderately to extremely high, .73 to .85 (Yarnold, Mueser, Grau, & Grimm, 1986; Bishop & Hailey, 1989; Yarnold & Mueser, 1989). These

results compare to those found for the adult version of the JAS.

The Framingham heart study developed a second self-report measure of Type A behavior. In 1949 a prospective study involving 5,127 people who were free of any manifestations of CHD were examined biannually for signs of the development of the disease. A 300-item questionnaire was designed to investigate areas of psychosocial strain and administered by interview to 1,822 members of the sample in 1965-1967 (Haynes, Levine, Scotch, Feinleib, & Kannel, 1978). The Framingham Type A Scale consists of 10 questions with slightly different versions for employed men and women and men and women remaining at home. Question content focuses upon time pressures, the need to excel, hard-driving, dominant and competitive tendencies, and rapid eating. Determining the scale score requires averaging the responses to the 10 questions which yields continuous scores, ranging from 0 to 1. FTAS defines Type A individuals as those people who scored in the upper 50 percent of the scores and Type B individuals as those who scored in the lower 50 percent. The Type A behavior pattern was found to be more common among men than women and to decline in both sexes with increasing age.

Several problems stem from the scale's design and the interpretation of the assessments made with the FTAS. First, concern exists as to whether 10 items can accurately

identify specific subgroups within a sample population (O'Looney, 1984). Secondly, the scale defines Type A individuals as the upper 50 percent of the scores when no evidence suggests an appropriate cut-off point for differentiation. Thirdly, the scale's ability to predict new cases of heart disease clearly relates to the age and sex of the subject and the specific type of CHD experienced. Validation studies have not provided reliable evidence for indicating the existence of a relationship between FTAS classification of Type A with other measures shown to be predictive of CHD. Comparison research has been hampered by different operational definitions of Type A and non equivalent samples (O'Looney, 1984).

Some advantages of the Framingham Type A Scale in comparison to other predictive assessment measures include: brevity, cost effectiveness, and ease of administration and scoring. Since the scale was designed for use with both sexes and various income levels, it is appropriate to use with a variety of populations.

Another self-report measure, the Bortner Rating Scale (BRS), consists of 14 pairs of adjectives. The items measure the extent to which the respondent's see themselves as being hard-driving, ambitious, competitive, punctual, feeling rushed, impatiently waiting, doing several things at once, job involvement, eating and walking fast, interrupting others during conversations, expressing feelings, and

talking emphatically (O'Looney, 1984). Subjects are asked to mark the point on the line that best characterizes their behavior on that dimension. Summing the length of the line measured from the Type B end of the dimension across all 14 ratings yields a total score (Mathews & Haynes, 1986). The higher the overall score the more Type A-like the individual.

European epidemiologic studies primarily use the Bortner Rating Scale. The test-retest reliability correlation was .71 with a 34 week interval in Britain (Johnson & Shaper, 1983). The French-Belgium Collaborative Group (1982) prospectively validated the Scale. The sample consisted of three cohorts of men aged 40-60 years; two cohorts were French civil servants (N = 2126), while the third cohort involved Belgium factory workers (N = 685). Data suggest that the Bortner scale significantly predicts the development of heart disease, independent of age, systolic blood pressure, smoking and cholesterol.

While the Bortner Rating Scale appears to have significant potential as a measure of Type A behavior, it has problems typically associated with a self-report questionnaire: it requires a valid self-appraisal by the respondent, it may be affected by responses biases, and it can not create a challenging environment to elicit actual Type A behavior indicators. Currently, only preliminary data are available regarding the predictive powers of the

scale. Having the capacity of use on a wide variety of groups, the scale still needs subsequent validation studies. The BRS remains a relatively crude assessment tool. While lacking in available information, the scale seems to have potential as a Type A measure for use in a variety of settings.

Relationships Among Type A Behavior Measures

Although fairly high reliability coefficients characterize the Type A behavior pattern, the correlations between measures remains less than impressive. The JAS, FTAS, and BRS agree with the A-B classification from the SI in about 60-70 percent of middle-aged and undergraduate men (MacDougall, Dembroski, & Musante, 1979; Haynes, Feinleib, & Kannel, 1980; Mathews, Krantz, Dembroski, & MacDougall, 1982; Johnson, & Shaper, 1983; and Byrne, Rosenman, Schiller, & Chesney, 1985). Moderately low intercorrelations ($r = .60$) call into question the use of these measures as alternative indicators of the Type A behavior pattern (TABP) and hinders the generalization and accumulation of findings across studies (O'Looney, 1984). Only three studies have administered the SI and self-report instruments among population-based groups of women. Agreement rates between various self-reported Type A questionnaires and the SI have been even lower than the

corresponding figures for men. Anderson and Waldron (1983) reported a 54 percent agreement rate between the SI and JAS among middle-aged women aged 40-59 years (as cited in Mathews & Haynes, 1986). In comparisons involving the FTAS and SI the agreement rate was 51 percent (Haynes, Feinleib, & Kannel, 1980). Meininger (1983) reported agreement rates with the SI of 49 percent for the FTAS and 57 percent for the JAS for a sample from the northeastern part of the United States.

Numerous explanations for the low correlations exist. First, these measures may tap different aspects of TABP (Mathews, 1982). Second, these measures may contain substantial measurement error, which would attenuate their correlations with one another (Edwards, Baglioni, & Cooper, 1990). Third, these measures may contain multiple dimensions, some shared across measures others unique to a given measure. The unavailability of valid evidence concerning the dimensionality, measurement error, and underlying constructs associated with the JAS, FTAS, and BRS makes determining the degree of individual factor contribution to the low correlations found among these measures difficult.

Type A Construct Validity

Attitudes of health professionals toward the Type A

concept have changed dramatically over time. During the 1950s the construct was first described, during the 1960s empirically tested, and during the 1970s widely accepted (Booth-Kewley & Friedman, 1987). However, reports of failures to replicate findings has left the construct's validity in question (Dimsdale, Hackett, Hutter, & Block, 1980). Significant conceptual confusion surrounding the Type A concept is apparent.

Researchers working with the Type A domain have varying conceptualizations and accompanying operational definitions of the Type A construct. For example, Glass (1977) suggested that the essence of the Type A pattern lies in the inappropriate coping skill exhibited by Type A persons; he proposed that Type A behaviors represent the Type A individual's excessive desire to assert and maintain control over stressful aspects of his or her environment. Whereas Dembroski, Weiss, Shields, Haynes, and Feinleib (1978) suggested that the important characteristic of the Type A behavior pattern was physiological reactivity, which contributes to arterial damage, while being expressed in Type A characteristics such as rapid speech. Mathews (1982), submitted that Type A behavior may involve a strong need for productivity combined with ambiguous standards for evaluating that productivity. The Type A construct's broad caricature contributes to its difficulties (Evans, 1990).

One step toward reducing this broad caricature

recognizes that Type A behavior and coronary-prone behavior are not synonymous concepts. Coronary-prone behavior, by definition, leads to CHD while the relationship between CHD and Type A behavior remains a theoretical one. This differentiation suggests only certain elements associated with TABP may predict development of CHD. Emerging evidence suggests that only certain attributes of the TABP are unhealthy (Mathews, Glass, Rosenman, & Bortner, 1977; and Hansson, Hogan, Johnson, & Schroeder, 1983), while only certain aspects of the Type B pattern are healthy (Friedman, Hall, & Harris, 1985).

This characterization implies the presence of a number of different but perhaps related personality traits. However, after three decades of research, confusion about the nature and reliability of relations between psychological factors and CHD still exists. The task has been hampered not only by vague constructs but also by correlational research designs. Mathews (1982) believes the psychological dimensions underlying Type A characteristics have yet to be identified. Booth-Kewley and Friedman (1987) performed a meta-analysis to integrate and organize studies that investigated personality variables in relation to CHD. The variables included in this analysis were anger, hostility, aggression, depression, extroversion, anxiety, Type A, and the major components of Type A. Results indicate that modest but reliable associations exist between

some of the variables and CHD. Type A and depression produced the strongest association. Anger, hostility, aggression, and anxiety also reliably related to CHD. The relationship between Type A and CHD was smaller in prospective than in cross-sectional studies.

Carver and Glass (1978) designed a study to elicit the aggressiveness component in Type A individuals challenged by appropriate environmental circumstances. Male subjects were exposed to a situation that did or did not threaten their sense of competence and mastery. An opportunity was then given to administer an electric shock to a confederate. In the first study, the instigation procedure increased aggression among Type As but did so to a lesser degree among Type Bs. In the second, similar instigation differences between Type As and Type Bs occurred along with a larger difference in a frustration-only condition. These findings suggest Type As engage in a response style that maintains and asserts control over the physical environment.

Jones (1984) studied a naturally occurring challenging environment. Students (66 men and 47 women) from the Monash Medical course were surveyed at the beginning of each academic year; the JAS (Form N) was administered three times. Type A subscale score calculations used weights provided by the author from a discriminant function analysis. The subjects represented the survivors of the medical school experience. The mean Type A subscale scores

for the class as a whole were significantly higher at the third testing than at the first ($t = 4.1$, $p < 0.001$ for dependent two tailed t-test). The increase in Type A scores appeared to be a widespread small increase rather than a large jump by a few people. It seems that the challenges of the highly competitive medical courses do tend to induce the kind of impatient and hard-driving behavior which characterizes the Type A behavior pattern.

Dismdale, Hackett, Block, and Hutter (1978) investigated the association between Type A behavior and the emotional factors of tension, depression, anger, vigor, fatigue, confusion, denial of cardiac illness, and accumulation of stressful life events. Subjects consisted of patients (99 men and 10 women) who presented for catheterization with presumptive coronary artery disease manifested by angina. Average age was 49 years, with a standard deviation of 9 years. The JAS (Form B) assessed Type A behavior. The Hackett-Cassem semi-structured interview assessed denial of cardiac illness. The Schedule of Recent Events measured stress experienced four months prior to hospitalization. The Profile of Mood States explored the amount of tension, depression, anger, vigor, fatigue, and confusion. Type A correlated significantly with accumulation of stressful life events ($r = 0.26$, $p < 0.01$) and current tension ($r = 0.28$, $p < 0.005$). Significant correlations were found between Type A and

depressive mood ($r = 0.18$, $p < 0.008$) and anger ($r = 0.19$, $p < 0.007$). Denial of significant cardiac disease tended toward an inverse relationship with Type A ($r = -1.16$, $p < 0.1$). The authors concluded that Type A is rooted in a psychosocial matrix.

Another study by Haemmerlie and Beamish (1990) found significant differences between characteristics and personality traits of As and Bs when 142 college students were administered the student version of the Jenkins Activity Survey (JAS) and the California Psychological Inventory (CPI). They found significant differences on 18 of the 23 CPI traits. Data suggests that the JAS Hard-Driving and Competitive subscale measured adaptive characteristics while the Speed and Impatience subscale and the Type A scale measured maladaptive characteristics.

Several studies explore the relationship between the Type A construct and personality variables utilizing the Eysenck Personality Inventory (EPI). Lovallo and Pishken (1980) using normal volunteers reported a positive correlations between Type A and the neuroticism and extraversion scales. Smith (1984) studied cardiac patients and reported a significant correlation between Type A and neuroticism. In the Belgian Heart Disease Prevention Project (BHDPP) a positive correlation emerged between JAS Type A and neuroticism and a negative association between Type A and the lie scale of the EPI (Kittel, Kornitzer, de

Bakker, & Dramaix, 1982). Dimsdale, Hackett, Hutter, and Block (1980) found Type A to be positively correlated with the accumulation of stressful life events, tension, depression, and anger.

Wong and Reading (1989), as part of a psychological evaluation administered the Eysneck Personality Questionnaire (EPQ) to 131 patients, along with the JAS, and a psychosocial questionnaire examining life events, hassles, and health behaviors. Correlational analysis revealed important associations between the JAS subscales and EPQ dimensions. Severity of life events and socioeconomic status positively correlated with the JAS Job Involvement scale. The JAS Speed and Impatience scale negatively correlated with positive health behaviors and positively correlated with anger level. Multiple regression analyses demonstrated that EPQ dimensions of extraversion and neuroticism, as well as life event measures to be positively associated with JAS Type A. Analyses were adjusted for the effects of age, sex, and other psychosocial factors. Tambs, Sundet, Eaves, and Berg (1989) administered the JAS and EPQ to 764 male and female subjects aged 16-60 years. The correlation between extraversion and the JAS Type A scale was 0.31 for males and 0.34 for females. These studies indicate relationships between the Type A behavior pattern and established personality dimensions.

Schiraldi and Beck (1988) further investigated the

personality correlates of the Type A behavior pattern. Over 700 college students were administered the JAS (Form T) and eleven psychological measures. The selection of psychological measures was guided by the various traits theorized to characterize the TABP: Rotter Internal External Locus of Control; Kaufman's Status Concern Scale; the MMPI Alexithymia Scale; Rosenberg's Self-Esteem Scale, Stability of Self Scale, Vulnerability Scale, Present Self Scale, and Faith in People; and the Purpose-In-Life Test. Analysis of the eleven personality variables determined individual contributions to a discriminant solution between extreme high and extreme low scores on the JAS. The results indicate that Type As exhibited significantly greater status concern. Type As were found to have less alexithymia, "the global inability to experience or verbalize affect" and more misanthropy, "a hostile and mistrusting view of other people" (Schiraldi & Beck, 1988, pp. 110-111). Greater life satisfaction was also reported by Type As. Self-esteem and related self-concepts did not differ significantly between Type As and Bs.

Krug and Johns (1986) mapped the Type A behavior pattern onto the personality trait domain by administering the JAS and the Sixteen Personality Factor Questionnaire (16PF) to 222 adult subjects. Use of canonical correlation derived the structure of common variance between the two sets of test scales. Type A behavior was found to be

"heavily influenced by anxiety and extraversion" (Krug and Johns, 1986, p. 124).

Type A as a Risk Factor for Illness

Type A behavior has been suggested as a risk factor for illness. Suls and Marco (1990) in an 18-month prospective study investigated the relationship between Type A behavior and medical records of illness. They also assessed chronic negative affectivity. The JAS and FTAS measured Type A behavior. While negative affectivity correlated with retrospective self-reported illness, only Type A predicted medical records of subsequent illness severity and number of illness-related medical visits. Thus individuals scoring high on JAS or FTAS may be at greater risk of minor illness when objective measures of illness are assessed over a period of one year or more.

Another study investigated the question of specificity of the association between Type A behavior pattern and coronary heart disease. In a sample of 1949 male and female adults the relationship between the JAS Type A measurement and self-reported disease (i.e. CHD, scarlatina, rheumatoid arthritis, asthma, diseases of the liver and gall bladder, thyroid troubles, tuberculosis, peptic ulcer, renal disease, hypertension and diabetes) was explored (Rime, Ucross, Bestgen, & Jeanjean, 1989). Type A subjects reported more

CHD, peptic ulcers, thyroid problems, asthma, and rheumatoid arthritis (Rime et al., 1989). Globally, more Type A than Type B subjects reported having been ill, and the average number of reported diseases per person was higher among Type As than among Type Bs (Rime et al., 1989). Overall, the data supported the view that TABP is a general disease-prone condition rather than merely a specific coronary risk factor.

Modifying the Type A Behavior Pattern

Attempts to modify the Type A behavior pattern stem from the Type A construct's identification as a general disease prone condition. Within CHD literature treatment and prevention aim to modify the pathogenic life style characteristics of Type A. Recognizing that the elimination of uncontrollable aversive events from an individual's life is an unattainable goal, the focus has been upon how the individual attempts to cope with threats to their sense of control. The Type A style of response may be adaptive for initial confrontations but over the duration proves to be maladaptive. Evidence indicates that clinical and psychopharmacological techniques might prove effective in attenuating the hard-driving and time-urgent components of the Type A behavior pattern.

Administration of psychotropic drugs of the sedative

type, for example, may assist the therapeutic process (Sigg, 1974 as cited in Glass, 1977). These drugs reduce emotional and muscular tension which characterize some Type As. Indirect support for this treatment stems from human and animal studies showing that biochemical and behavioral responses to psychosocial strain were depressed by diazepam and barbiturates (Sigg, 1974 as cited in Glass, 1977).

Several non-drug clinical techniques have also been proposed to modify Type A behavior. One of these, relaxation exercise, can improve a person's ability to cope with environmental stressors in a less compulsively hard-driving manner. Benson and Barr (1984) conducted a study that utilized a secularized version of transcendental meditation (TM). While the regular practice of TM reduced blood pressure and heart rate, no empirical evidence suggested the alteration of Type A behavior.

Another approach, biofeedback, teaches individuals to cope differently with life stresses. Biofeedback attempts to control symptoms in stress-related disorders. The technique extends to include the regulation of stress itself. Biofeedback can be used to teach individuals how to approach stressful events in an adaptive manner. Kratky (1988) investigated the effect of relaxation training with and without biofeedback on the Type A behavior pattern. No significant differences in the quality of relaxation achieved by Type A or Type B subjects were found.

Cassel and Sumantardja (1982) developed a program of stress reduction training based on transpersonal psychology which included biofeedback and computers. They feel that the goal is not merely to reduce Type A behavior but to produce a Type C person; relaxation training and stress reduction in personal management combined with careful ordering of priorities for single goal attainment form a Type C personality that develops coping skills for achieving goals. However, they provided no empirical support for their theory.

Suinn (1975) incorporated behavior modification into the development of a Cardiac Stress Management Program (CSMP)(as cited in Glass, 1977). Within this program two assumptions were made: (1) Type As by their life style subject themselves to situations which produce stress reactions; (2) Type As can not alter their pattern of responding by themselves. In CSMP the individual is trained in self-control of stress reactions and learns to develop alternate behaviors as a substitute for Type A characteristics. The goal is to encourage different life style actions while retaining productivity without the associated health risks.

Hart (1984) using a modified version of Suinn's (1975) program reported significant reductions in Type A behavior. Two possible explanations for the results were discussed: (1) Type As may experience a sense of increased control over

potentially threatening person-environment interactions, which decreased the need for Type A coping behaviors or, (2) the program may cause Type As to become hypersensitive to the uncomfortable symptoms of stress, which may negatively reinforce Type B behavior. Thus a narrow-focus single-method approach may be the most effective strategy for modifying Type A behavior.

Other stress management programs have been developed. Lester, Leitner, Lewis and Posner (1984) developed a program for 55 male police administrators wherein subjects were educated in the biological and psychological effects of stress followed by instruction in and practice of stress reduction techniques. The program effectively reduced Type A behavior.

Johnston (1982) reached the following conclusions in a literature review of direct behavioral interventions to reduce Type A behavior and essential hypertension: (1) preliminary evidence suggests possible alteration of Type A behavior, and (2) such alterations reduce the risk of recurrence of myocardial infarction. Behavioral techniques successfully reduced blood pressure for up to 12 months following intervention. However, the exact components of an effective treatment package remains unestablished, nonetheless relaxation training and stress management techniques are suggested as important parts of effective therapy. Reductions in blood pressure obtained through

relaxation and stress management studies could lead to significant gains in overall health level.

Additional support for the effectiveness of stress management techniques comes from Bennett and Carroll (1990). The application of stress management techniques reduced three risk factors for CHD: Type A behavior, raised serum cholesterol, and hypertension. Evidence suggest that this type of intervention not only reduces individual risk factors but also reduces mortality and morbidity due to CHD.

Another approach for teaching individuals how to modify Type A behavior is anxiety management training. Nakano (1990) provided 36 Japanese males displaying Type A behavior with either anxiety management training, focusing on coping with anger and hostility, or operant self-control procedures. Treated subjects showed significant reductions in overall Type A behavior in comparison with controls. Results support the hypothesis; self-control training methods provide the opportunity to adopt more effective coping strategies and less reliance upon Type A coping strategies.

Rational-emotive treatment programs have also been used to reduce Type A behavior. Thurman (1983) randomly assigned 22 college students to either a rational-emotive therapy group or a no-treatment control group. Six treatment sessions were structured around four major components of Type A behavior: time urgency, competitiveness, hostility

and anger, and achievement striving. Treated subjects significantly reduced and maintained self-reported levels of Type A speed and impatience, and competitive behaviors. At a two month follow-up treated subjects also continued to show reductions in irrational high self-expectations, anxiety about the future, and perfectionism. Findings support the efficacy of cognitive-restructuring methods in the modification of Type A behavior.

Woods (1987) conducted a series of stress management workshops in a rational-emotive therapy format for 49 employees in a large corporation. They obtained major changes on all the dependent variables, which included Type A behavior, anxiety, anger, and physical illness. These changes reflected alterations in irrational beliefs.

A sixth proposed method for modifying Type A behavior is cognitive-behavioral modification. Thurman (1984) designed an 8 week, 16 hour cognitive-behavior modification program to help college faculty change their Type A life styles. Strategies used included cognitive restructuring, anger management, and assertiveness training. Subjects significantly reduced Type A behavior, anger, and irrational beliefs. In a second study, Thurman (1985) again working with college faculty members investigated the effects of cognitive-behavioral modification (CBM) and cognitive-behavioral modification plus assertiveness training (CBM/AT). Data suggests that both treatments were

significantly more effective than a minimal treatment control in reducing Type A behavior, hostility, and irrational beliefs. However, assertiveness training did not significantly increase the effectiveness of the CBM/AT program in reducing the dependent variables. In six month and one year follow-up evaluations, CBM and CBM/AT groups continued to report significantly less Type A behavior and Type A irrational beliefs than controls (Thurman, 1985). Results support the long term effectiveness of brief cognitive-behavioral treatments in reducing Type A behavior.

Kelly and Stone (1987) investigated the effects of cognitive-behavioral treatment, values-clarification treatment in combination with anxiety management training (AMT), and AMT alone in 31 Type A individuals. All subjects reduced Type A behavior, with none of the treatment groups producing clearly superior reductions. However, reduction of anxiety was significantly effected by treatment conditions and self-monitoring as well as the interaction of these two variables.

Lohr and Hambereger (1990) reviewed the cognitive-behavioral modification literature. They reached two conclusions: (1) hostility is the primary pathogenic factor in CHD within Type A behavior, and (2) cognitive-behavioral treatments for hostility hold promise for the treatment of individuals at risk for CHD.

Finally, exercise has been proposed for reducing Type A

behavior. Drigger (1984), using 29 age and weight matched pairs of healthy men, investigated whether the maximum exercise stress test (MEST) could be an effective behavior-modification tool. Results indicate modest increases in exercise level by the MEST with no changes reported in Type A behavior. Thus indicating MEST as an ineffective behavior modification tool for Type A behavior.

In another study, Jasnoski, Cordray, Houston, and Osness (1987) examined whether or not aerobic training modifies Type A behavior. After 10 weeks in the aerobic program, Type A subjects exhibited lower Type A behavior than control subjects. Seraganian, Roskies, Hanley, and Oseasohn (1987) assigned subjects to one of three, ten week intervention programs: aerobic training, weight training, or cognitive-behavioral stress management. Subjects in the two physical activity programs showed the expected physical adaptations; subjects improved in overall cardiovascular health. However, no changes in psychophysiological reactivity was found in any of the three groups.

Behavioral intervention focusing on the surface characteristics of the Type A construct have proved ineffective. The broad caricature of the Type A construct may be one of the difficulties hampering behavioral intervention. Since Type A is a risk factor for illness, research needs to focus upon an understanding of basic psychological characteristics underlying this behavior

pattern so that we may begin to treat causes instead of symptoms. "We must look to the source traits that explain the observed covariation among a set of surface characteristics, if we are to completely understand psychological disposition to CHD" (Cattell & Schneider as cited in Krug & Johns, 1986, p. 125).

Current Type A modification approaches utilize information about the response differences reported between Type A and B individuals. Since treatment of symptoms proved to be ineffective new intervention strategies must be developed. Knowledge of Type A source traits may lead to effective intervention and prevention strategies. The underlying psychological processes or source traits involved in Type A behavior remain largely unexplored. The current study investigates the underlying personality factors of Type A behavior within a college student population utilizing the 16PF and JAS.

Research Questions

The following research questions were generated:

1. How does the JAS Type A scale relate to traits identified by the Sixteen Personality Factor Questionnaire (16PF)?

2. Does gender play a role in determining Type A behavior and its correlates with personality traits?

Chapter 3

Methods

Description of the Sample

A total of 231 students (76 males and 155 females) enrolled in psychology courses at Eastern Illinois University served as voluntary participants. Subjects ranged in age from 18 to 25 years ($\underline{M}$ = 19.57), with those exceeding the age of 25 excluded from analysis. Some volunteers received extra course credit for participation.

Instruments

The student version of the Jenkins Activity Survey (JAS), a 21 item paper and pencil measure of the Type A behavior pattern (see Appendix A), and the Sixteen Personality Factor Questionnaire (16PF), a paper and pencil measure of 16 primary source traits of adult personality, were administered.

The 16PF was developed as a measure of the inherent structure of personality. "The primary scales of the 16PF were defined by factor-analytic investigations of the Allport-Odbert trait lexicon, a dictionary of some 18,000 words available in the English language to describe

relatively permanent consistencies in human functioning" (Krug & Johns, 1986). During two decades of growth the psychometric properties of the test have improved and the test has expanded into five parallel forms (Cattell, Eber, & Tatsuoka, 1970; Krug, 1989).

Scores on the 16PF can be interpreted in several ways. One interpretation, the profile-matching technique, involves comparing the examinee's scores with those of selected groups. Criterion estimation, a second interpretive technique, involves the use of "statistical equations in which each score is multiplied by a specified numerical weight to predict selected behaviors" (Aiken, 1989). Finally, scores on three validity scales can be used to determine whether the profile is valid.

The psychometric properties of the 16PF scales especially the test-retest reliabilities and construct validities are considered to be exceptionally high (Cattell, Eber, & Tatsuoka, 1970). Within the area of behavioral medicine, the 16PF has demonstrated broad applicability and good validity (Krug & Johns, 1986). The 16PF score profile can provide understanding of the part played by psychological factors in disease and treatment (Krug & Johns, 1986).

Procedure

Testing was conducted in a standard classroom setting with a group administration format. The questionnaires were administered separately in two sessions. Subjects took 15 to 20 minutes to complete the JAS and 25 to 55 minutes to complete the 16PF. All 231 subjects completed the JAS. The 16PF was administered to 166 subjects, 49 males and 117 females. A numeric code was used to identify each questionnaire.

Oral instructions were provided to the subjects by the experimenter along with brief instructions printed on each questionnaire. Two experimenters administered the JAS and one experimenter administered the 16PF. Subjects were instructed not to put their names on the questionnaires assuring anonymity. All subjects were encouraged to answer each question as honestly and accurately as possible and to take as much time as was needed.

Analysis

Only subjects below the age of 26 who had completed both the JAS and 16PF were included in analysis. The 21 items of the student JAS form the Type A scale. Identified Type A responses received a score of one while Type B responses received no score. Within each question one or

two Type A and B response choices exist (see Appendix B). For each subject a Type A scale score was derived by summing the points earned for Type A responses within the 21 items. Scores ranged from 0 to 17.

The next step of analysis divided the JAS Type A scale scores into three groups, the middle third consisting of scores received by 65 subjects were excluded from analysis. Scores earned by the remaining top and bottom third of subjects were used in discriminant analysis procedures to identify the 16PF personality characteristics associated with the Type A and B behavior pattern.

Chapter 4

Results

The 16PF scales are bipolar, with extreme scores indicating a strong representation of the personality characteristics identified by each scale. Since we are examining differences between group mean scale scores and not individual profiles, the personality characteristics identified as significant discriminators should be viewed as representing trends or tendencies in the described direction, rather than as definitive descriptions of group members. The discriminant functions reported invariably represent small differences in scale scores. Another caution considered when analyzing the personality data involves the interpretation of the individual scales. Designed to represent specific personality dimensions, the interpretation of the scales may vary depending on the overall profile and on what aspects of the dimensions are attended to. Thus a skilled 16PF interpreter is called on to make subtle judgments concerning the meaning of individual scales within a given profile. Appendix C provides a description of the individual scales. For a more thorough understanding of the profile interpretation procedure, refer to the Handbook for the 16PF (Cattell, Eber, & Tatsvota, 1970) or to A Guide to Clinical Uses of

the 16PF (Karson & O'Dell, 1976). A final note regarding the 16PF involves the composite scales. Since these variables are linear combinations of the primary scales, the two sets of variables were analyzed separately.

Discriminant Analysis

Due to the small group sizes and the use of multiple discriminant procedures, a probability level of .001 was used to determine significance. Individual variables were considered to be meaningful discriminators if they appeared on the discriminant function. In addition variables with a total structure coefficient (TSC), the correlation between the individual variables and the discriminant function, above .30 and a univariate F significant at $p < .05$ was required for a variable to be considered as a discriminator.

Analysis of Primary and Secondary Scales

The task of this phase of analysis involved identifying the personality variables that characterize the Type A behavior pattern. Discriminant analysis procedures were employed to determine the personality variables that discriminate between the Type A group and Type B group; men and women were analyzed separately and as a combined group.

Of the three discriminant analysis procedures performed, all were significant at the $p < .001$ level. Table 1 presents the significant discriminating personality variables for each group. Variables are presented in order of importance, as determined by the magnitude of their total structure coefficients. Variables appearing on the discriminant function are marked with an asterisk. Adjectives describing the opposite poles of the 16PF scales have been placed under the groups they actually describe. Negative and positive correlations should be interpreted according to their absolute values. Thus negative correlations do not indicate the reverse of the trait specified.

The ability of the discriminant function, comprised of weighted 16PF scale scores, to categorize Type A and B subjects was exceptionally high (see Table 2). Originally, the subjects were grouped as Type A or Type B by extreme JAS Type A scale scores. Once the discriminant function was created subject classification as A or B utilizing the weighted 16PF scale scores was possible. For the combined male and female group, the overall percent of correctly classified subjects using the 16PF primary scales was 74.26 percent with the secondary scales classifying 72.28 percent correctly. On the primary and secondary scales 87.50 percent of male subjects were correctly classified. Classification results for female subjects dropped to 69.57 percent for the primary scales and 65.22 percent for the secondary scales.

Table 1

16PF Personality Scales Characterizing Type A Behavior in Order of Magnitude of Total Structure Coefficients (TSC)

Combined Male and Female Subjects			
	Type B (N=57)	Type A (N=44)	TSC
	PRIMARY SCALES (P<.0001; C.C.= .52)		
H*	Shy	Bold	.79
E*	Submissive	Dominant	.72
A*	Cool	Warm	.58
F	Sober	Enthusiastic	.48
N	Forthright	Shrewd	-.31
	SECONDARY SCALES (P<.0001; C.C.=.54)		
I*	Introversion	Extroversion	.71
IV*	Subduedness	Independence	.66
VII	Low Leadership	High Leadership	.59
VI	Neuroticism	Adjustment	-.47

* Variables on the Discriminant Function

Note: C.C. = Canonical Correlation

(continued)

Table 1 (cont.)

	Male Subjects		
	Type B (N=14)	Type A (N=18)	TSC
	PRIMARY SCALES (P<.0001; C.C.=.80)		
H*	Shy	Bold	.67
A*	Cool	Warm	.45
F	Sober	Enthusiastic	.39
E	Submissive	Dominant	.35
	SECONDARY SCALES (P<.0001; C.C.=.75)		
I*	Introversion	Extroversion	.84
VII	Low Leadership	High Leadership	.68
VI	Neuroticism	Adjustment	-.65
II	High Anxiety	Low Anxiety	-.45

* Variables on the Discriminant Function

Note: C.C. = Canonical Correlation

(continued)

Table 1 (cont.)

Female Subjects			
	Type B (N=43)	Type A (N=26)	TSC
	PRIMARY SCALES (P<.0002; C.C.=.48)		
E*	Submissive	Dominant	.76
H	Shy	Bold	.50
O	Apprehensive	Self-assured	-.39
F	Sober	Enthusiastic	.32
	SECONDARY SCALES (P<.0048; C.C.=.39)		
IV*	Subduedness	Independence	.72
VII	Low Leadership	High Leadership	.47
IX	Low Achievement	High Achievement	.46
I	Introversion	Extroversion	.43

* Variables on the Discriminant Function

Note: C.C. = Canonical Correlation

Table 2

Classification Results

Actual Group	Number of Cases	Predicted Membership Type B	Type A
Combined Male and Female Subjects			
PRIMARY SCALES			
Type B	57	40 70.2%	17 29.8%
Type A	44	9 20.5%	35 79.5%
Ungrouped Cases	65	29 44.6%	36 55.4%
Chi-Square	(3, N = 101) = 30.89		
SECONDARY SCALES			
Type B	57	40 70.2%	17 29.8%
Type A	44	11 25.0%	33 75.0%
Ungrouped Cases	65	31 47.7%	34 52.3%
Chi-Square	(3, N = 101) = 34.10		

(continued)

Table 2 (cont.)

Male Subjects			
Actual Group	Number of Cases	Predicted Membership Type B	Type A
PRIMARY SCALES			
Type B	14	11 78.6%	3 21.4%
Type A	18	1 5.6%	17 94.4%
Ungrouped Cases	17	8 47.1%	9 52.9%
Chi-Square	(2, N = 32) = 29.25		
SECONDARY SCALES			
Type B	14	12 85.7%	2 14.3%
Type A	18	2 11.1%	16 88.9%
Ungrouped Cases	17	8 47.1%	9 52.9%
Chi-Square	(2, N = 32) = 23.87		

(continued)

Table 2 (cont.)

Female Subjects			
Actual Group	Number of Cases	Predicted Membership Type B	Type A
PRIMARY SCALES			
Type B	43	29 67.4%	14 32.6%
Type A	26	7 26.9%	19 73.1%
Ungrouped Cases	48	24 50.0%	24 50.0%
Chi-Square	(2, N = 69) = 16.93		
SECONDARY SCALES			
Type B	43	29 67.4%	14 32.6%
Type A	26	10 38.5%	16 61.5%
Ungrouped Cases	48	22 45.8%	26 54.2%
Chi-Square	(2, N = 69) = 10.68		

Discussion

Within the current study the 16PF primary and secondary scale personality variables that discriminated between the Type A and B group utilizing both male and female subjects generated the following adjectives to describe Type A behavior. Type As were found to be bold, dominant, warm, enthusiastic, shrewd, extroverted, independent, high on leadership, and well adjusted. Type Bs were found to be shy, submissive, cool, sober, forthright, introverted, subdued and low on leadership. When analyzed separately Type A male subjects were found to be warm, bold, enthusiastic, dominant, extroverted, high on leadership, adjusted, and low on anxiety while male Type Bs were shy, cool, sober, submissive, introverted, low on leadership, and high on anxiety. Female Type As were described as dominant, bold, self-assured, enthusiastic, independent, high on leadership and achievement, and extroverted. Type B females were submissive, shy, apprehensive, sober, subdued, low on leadership and achievement, and introverted. Overall, Type A and B adjective description correspondence between male and female subjects is moderately high; concurring on five of eight descriptions.

As indicated by the above adjective descriptions, Type As seem to score higher on personality variables that Western Society would view positively and describe as well

adjusted. Consistent with previous findings extraversion was found to correspond with Type A behavior (Lovallo & Pishken, 1980; Krug & Johns, 1986; Tambs, Sundet, Eaves & Berg, 1989; and Wong & Reading, 1989). However, while previous studies reported positive correlations between Type A and neuroticism, current findings are in the opposite direction indicating good adjustment (Lovallo & Pishken, 1980; Smith, 1984; Wong & Reading, 1989).

As indicated by research previously discussed, gender differences do appear to exist; the Type A behavior pattern is more common among men than women and seems to decline in both sexes with increased age. Since the JAS was developed in a white, middle-class, disease free, male population and the appropriateness and validity of its use in different ethnic groups, cultures and for women remains unestablished, the gender differences found within the current studies are not surprising. The combined gender group profile generated by Type As seems to be heavily influenced by the responses of male subjects which is somewhat surprising given the small group size. Further research using larger sample sizes is needed to explore personality variables that discriminate not only between Type As and Bs but also between Type A and B males and females.

Since Type As often exhibit overt behaviors of competitiveness, impatience, and aggression, the adjective description of warmth is somewhat surprising. The 16PF

primary scale A, warm verses cool, is associated with being good natured, easy-going, emotionally expressive, cooperative, and adaptable. Further, the indication that Type As during the college years may be psychologically better adjusted than Type Bs is also unexpected given the associated overt negative characteristics attributed to Type A behavior. These adjectives, depicting a different portrait of Type As support the contention that only certain characteristics of Type A behavior are unhealthy.

Research indicates that the Type A style of response may be adaptive initially but over the duration proves to be maladaptive. The Type A behavior pattern is viewed as a general disease-prone condition rather than merely a specific coronary risk factor. In stressful situations Type As may mobilize their body chemistry for fight-or-flight. With occasional stress experiences these chemicals appear to be harmless and initially beneficial. However, these same chemicals may cause damage if an individual is continually mobilized and may lead to disease development. Krug and Johns (1986) feel "personality may be the single largest systematic influence in coronary prone behavior" (p. 131). From a psychodynamic framework this emerging pattern of anxious insecurity and need for social approval conceivably explain an overt pattern of competitiveness, aggressiveness, and impatience. However, within the current study high anxiety did not correlate with Type A Behavior; Type A

males scored low on anxiety.

Within the current study, the unanticipated features of Type A individuals may be reflective of the developmental stage of college students. According to Erikson (1968) most individuals in this age range are in the sixth stage of development (see Table 3). During this stage individuals establish independence from their parents and from protective institutions and begin to function as mature, responsible adults. The focus of this stage is not only upon some kind of productive work but also upon establishing intimate relationships with others in the form of close friendships and sexual unions. During this period Type A features such as independence, extroversion, and enthusiasm may contribute positively to successful completion of this developmental stage.

During the years from 35-55, the focus changes from intimacy to concern with broader and more long-range issues. Type As may become overwhelmed by a sense of "stagnation, boredom, and interpersonal impoverishment" (Erikson, 1968, p. 138). In response to such feelings some Type As might portray extremes in competitiveness, aggression, hostility, and impatience. Utilizing a limited response repertoire for an extended period of time may contribute to the associated health risks found within Type As. This developmental stage shift from intimacy to generativity may account for some of the maladaptive features associated with Type A since the

majority of investigations have focused upon this age group. From this developmental perspective Type Bs successfully make the transition to generativity; they are able to transcend their immediate self-related interests and find value in guiding future generations. Type Bs characterized as introverted, submissive, sober, and forthright may be more comfortable assuming the role of care giver.

Erikson's theory of personality development provides a possible explanation for the finding that only certain attributes of Type A are unhealthy while only certain attributes of Type B are healthy. His theory may also account for gender differences emerging between Type As and Type Bs. Within Western Society, females traditionally have assumed the role of care giver and also create intimacy in relationships. Females may have an advantage over males in successfully completing these two developmental stages. Thus female Type As may not manifest the overt behavior pattern as often as their male counterparts and consequently not develop the maladaptive features of illness and CHD associated with the Type A behavior pattern.

Table 3

Erikson's Stages of Psychosocial Development

Stage	Approximate Ages	Adaptive vs. Maladaptive Ways of Coping	Basic Strength
Oral-sensory	Birth through first year	Trust vs. Mistrust	Hope
Muscular-anal	Early childhood, through third year	Autonomy vs. Doubt	Will
Locomotor-genital	3-5 years 6-11 years to puberty	Initiative vs. Guilt Industry vs. Inferiority	Purpose Competence
Adolescence	12-18 years	Identity vs. Role Confusion	Fidelity
Young adulthood	18-35 years	Intimacy vs. Isolation	Love
Adulthood	35-55 years	Generativity vs. Stagnation	Care
Maturity & old age	55^{+} years	Ego Integrity vs. Despair	Wisdom

Suggestions for Future Research

Since small sample size may limit the generalizability of findings, a replication of this study using a larger sample size and a multi-cultural population may result in a more thorough understanding of the underlying personality factors of Type A behavior. Further research comparing 16PF profiles of Type A individuals identified through use of additional self-report measures such as the Bortner Rating Scale, Framingham Type A Scale, and the Structured Interview may provide additional insights into the various features of the Type A behavior pattern. Within the literature the appropriateness of a two-factor solution for the student JAS remains unestablished (Glass, 1977; Fekken, Jackson, & Holden, 1985; and Bryant & Yarnold, 1989). Given these preliminary findings further study of the underlying personality factors of Type A behavior seems warranted.

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Appendix A

THE JENKINS ACTIVITY SURVEY

Form T

THE JENKINS ACTIVITY SURVEY
Form T

Please answer the questions on the following pages by marking the answers that are true for you. Each person is different, so there are no "right" or "wrong" answers. Of course, all you tell us is strictly confidential--to be seen only by the research team. Do not ask anyone else about how to reply to the items. It is your personal opinion that we want.

Your assistance will be greatly appreciated.

For each of the following items, please fill in the letter of the ONE best answer on the answer sheet. DO NOT MARK ON TEST.

1. Is your everyday life filled mostly by
   a. Problems needing solution
   b. Challenges needing to be met
   c. A rather predictable routine of events
   d. Not enough things to keep me interested or busy

2. When you are under pressure or stress, do you usually:
   a. Do something about it immediately
   b. Plan carefully before taking any action

3. Ordinarily, how rapidly do you eat?
   a. I'm usually the first one finished
   b. I eat a little faster than average
   c. I eat at about the same speed as most people
   d. I eat more slowly than most people

4. Has your spouse or some friend ever told you that you eat too fast?
   a. Yes, often
   b. Yes, once or twice
   c. No, no one has told me this

5. When you listen to someone talking, and this person takes too long to come to the point, do you feel like hurrying them along?
   a. Frequently
   b. Occasionally
   c. Almost never

6. How often do you actually "put words in their mouth" in order to speed things up?
   a. Frequently
   b. Occasionally
   c. Almost never

7. If you tell your spouse or a friend that you will meet them somewhere at a definite time, how often do you arrive late?
   a. Once in a while
   b. Rarely
   c. I am never late

8. Do most people consider you to be
   a. Definitely hard-driving and competitive?
   b. Probably hard-driving and competitive?
   c. Probably more relaxed and easy going?
   d. Definitely more relaxed and easy going?

9. Nowadays, do you consider yourself to be?
   a. Definitely hard-driving and competitive?
   b. Probably hard-driving and competitive?
   c. Probably more relaxed and easy going?
   d. Definitely more relaxed and easy going?

10. How would your spouse (or closest friend) rate you?
   a. Definitely hard-driving and competitive?
   b. Probably hard-driving and competitive?
   c. Probably more relaxed and easy going?
   d. Definitely more relaxed and easy going?

11. How would your spouse (or best friend) rate your general level of activity?
   a. Too slow. Should be more active.
   b. About average. Is busy much of the time.
   c. Too active. Needs to slow down.

12. Would people who know you well agree that you have less energy than most people?
   a. Definitely Yes
   b. Probably Yes
   c. Probably No
   d. Definitely No

13. How was your "temper" when you were younger?
   a. Fiery and hard to control
   b. Strong, but controllable
   c. No problem
   d. I almost never got angry

14. How often are there deadlines in your courses? (If deadlines occur irregularly, please circle the closest answer below).
   a. Daily or more often
   b. Weekly
   c. Monthly
   d. Never

15. Do you ever set deadlines or quotas for yourself in courses or other things?
   a. No
   b. Yes, but only occasionally
   c. Yes, once per week or more often

16. In school do you ever keep two projects moving forward at the same time by shifting back and forth rapidly from one to the other?
    a. No, never
    b. Yes, but only in emergencies
    c. Yes, regularly

17. Do you maintain a regular study schedule during vacations such as Thanksgiving, Christmas, and Easter?
    a. Yes
    b. No
    c. Sometimes

18. How often do you bring your work home with you at night or study materials related to your courses?
    a. Rarely or never
    b. Once a week or less often
    c. More than once a week

19. When you are in a group, do the other people tend to look to you to provide leadership?
    a. Rarely
    b. About as often as they look to others
    c. More often than they look to others

Of the following questions, please compare yourself with the average student at your university. Please choose the answer that is the most accurate description.

20. In sense of responsibility, I am
    a. much more responsible
    b. a little more responsible
    c. a little less responsible
    d. much less responsible

21. I approach life in general
    a. much more seriously
    b. a little more seriously
    c. a little less seriously
    d. much less seriously

22. Sex
    a. Male
    b. Female

Would you please give the following information. (All answers are confidential; information is used for research purposes only.)

Please verify that you have provided this information on the answer sheet: your name, social security number, and age.

Appendix B

ANSWER KEY FOR THE JENKINS ACTIVITY SURVEY

Form T

ANSWER KEY FOR THE JENKINS ACTIVITY SURVEY
Form T

Italicized choices indicate a Type A response and receive a score of one. Choices not italicized indicate a Type B response and receive no score.

1. Is your everyday life filled mostly by
   a. Problems needing solution
   b. Challenges needing to be met
   c. A rather predictable routine of events
   d. Not enough things to keep me interested or busy

2. When you are under pressure or stress, do you usually:
   a. Do something about it immediately
   b. Plan carefully before taking any action

3. Ordinarily, how rapidly do you eat?
   a. I'm usually the first one finished
   b. I eat a little faster than average
   c. I eat at about the same speed as most people
   d. I eat more slowly than most people

4. Has your spouse or some friend ever told you that you eat too fast?
   a. Yes, often
   b. Yes, once or twice
   c. No, no one has told me this

5. When you listen to someone talking, and this person takes too long to come to the point, do you feel like hurrying them along?
   a. Frequently
   b. Occasionally
   c. Almost never

6. How often do you actually "put words in their mouth" in order to speed things up?
   a. Frequently
   b. Occasionally
   c. Almost never

7. If you tell your spouse or a friend that you will meet them somewhere at a definite time, how often do you arrive late?
   a. Once in a while
   b. Rarely
   c. I am never late

8. Do most people consider you to be
   a. Definitely hard-driving and competitive?
   b. Probably hard-driving and competitive?
   c. Probably more relaxed and easy going?
   d. Definitely more relaxed and easy going?

9. Nowadays, do you consider yourself to be?
   a. Definitely hard-driving and competitive?
   b. Probably hard-driving and competitive?
   c. Probably more relaxed and easy going?
   d. Definitely more relaxed and easy going?

10. How would your spouse (or closest friend) rate you?
   a. Definitely hard-driving and competitive?
   b. Probably hard-driving and competitive?
   c. Probably more relaxed and easy going?
   d. Definitely more relaxed and easy going?

11. How would your spouse (or best friend) rate your general level of activity?
   a. Too slow. Should be more active.
   b. About average. Is busy much of the time.
   c. Too active. Needs to slow down.

12. Would people who know you well agree that you have less energy than most people?
   a. Definitely Yes
   b. Probably Yes
   c. Probably No
   d. Definitely No

13. How was your "temper" when you were younger?
   a. Fiery and hard to control
   b. Strong, but controllable
   c. No problem
   d. I almost never got angry

14. How often are there deadlines in your courses? (If deadlines occur irregularly, please circle the closest answer below).
   a. Daily or more often
   b. Weekly
   c. Monthly
   d. Never

15. Do you ever set deadlines or quotas for yourself in courses or other things?
   a. No
   b. Yes, but only occasionally
   c. Yes, once per week or more often

16. In school do you ever keep two projects moving forward at the same time by shifting back and forth rapidly from one to the other?
   a. No, never
   b. Yes, but only in emergencies
   c. Yes, regularly

17. Do you maintain a regular study schedule during vacations such as Thanksgiving, Christmas, and Easter?
   a. Yes
   b. No
   c. Sometimes

18. How often do you bring your work home with you at night or study materials related to your courses?
    a. Rarely or never
    b. Once a week or less often
    c. More than once a week

19. When you are in a group, do the other people tend to look to you to provide leadership?
    a. Rarely
    b. About as often as they look to others
    c. More often than they look to others

20. In sense of responsibility, I am
    a. much more responsible
    b. a little more responsible
    c. a little less responsible
    d. much less responsible

21. I approach life in general
    a. much more seriously
    b. a little more seriously
    c. a little less seriously
    d. much less seriously

Appendix C

DESCRIPTION OF 16PF SCALES

CAPSULE DESCRIPTIONS OF THE 16 PRIMARY PERSONALITY FACTORS

FACTOR A

Low Score Direction		High Score Direction
RESERVED, Detached, Critical, Cool, Impersonal	vs.	WARMHEARTED, Outgoing, Participating, Interested in People, Easy-going
(Sizothymia)		(Affectothymia)
People who score low (sten of 1 to 3) on Factor A tend to be stiff, cool, skeptical, and aloof. They like things rather than people, working alone, and avoiding compromises of viewpoints. They are likely to be precise and "rigid" in their way of doing things and in their personal standards. In many occupations, these are desirable traits. They may tend, at times, to be critical, obstructive, or hard.		People who score high (sten of 8 to 10) on Factor A tend to be goodnatured, easy-going, emotionally expressive, ready to cooperate, attentive to people, softhearted, kindly, adaptable. They like occupations dealing with people and socially impressive situations, and they readily form active groups. They are generous in personal relations, less afraid of criticism, better able to remember names of people.

FACTOR B

LESS INTELLIGENT, Concrete-thinking	vs.	MORE INTELLIGENT, Abstract-thinking, Bright
(Lower scholastic mental capacity)		(Higher scholastic mental capacity)
The person scoring low on Factor B tends to be slow to learn and grasp, dull, given to concrete and literal interpretation. This dullness may be simply a reflection of low intelligence, or it may represent poor functioning due to psychopathology.		The person who scores high on Factor B tends to be quick to grasp ideas, a fast learner, intelligent. There is some correlation with level of culture, and some with alertness. High scores contraindicate deterioration of mental functions in pathological conditions.

FACTOR C

AFFECTED BY FEELINGS, Emotionally Less Stable, Easily Upset, Changeable	vs.	EMOTIONALLY STABLE, Matures, Faces Reality, Calm, Patient
(Lower ego strength)		(Higher ego strength)
The person who scores low on Factor C tends to be low in frustration tolerance for unsatisfactory conditions, changeable and plastic, evading necessary reality demands, neurotically fatigued, fretful, easily annoyed and emotional, active in dissatisfaction, having neurotic symptoms (phobias, sleep disturbances, psychosomatic complaints, etc.). Low Factor C score is common to almost all forms of neurotic and some psychotic disorders.		The person who scores high on Factor C tends to be emotionally mature, stable, realistic about life, unruffled, possessing ego strength, better able to maintain solid group morale. This person may be making a resigned adjustment* to unsolved emotional problems.

*Shrewd clinical observers have pointed out that a good C level sometimes enables a person to achieve effective adjustment despite an underlying psychotic potential.

FACTOR E

HUMBLE, Mild, Accommodating, Easily Led, Conforming	vs.	ASSERTIVE, Aggressive, Authoritative, Competitive, Stubborn
(Submissiveness)		(Dominance)
Individuals scoring low on Factor E tend to give way to others, to be docile, and to conform. They are often dependent, confessing, anxious for obsessional correctness. This passivity is part of many neurotic syndromes.		Individuals scoring high on Factor E are assertive, self-assured, and independent-minded. They tend to be austere, a law to themselves, hostile or extrapunitive, authoritarian (managing others), and disregarding of authority.

FACTOR F

SOBER, Prudent, Serious, Taciturn vs. HAPPY-GO-LUCKY, Impulsively Lively, Enthusiastic, Heedless

(Desurgency)

Low scorers on Factor F tend to be restrained, reticent, and introspective. They are sometimes dour, pessimistic, unduly deliberate, and considered smug and primly correct by observers. They tend to be sober, dependable people.

(Surgency)

High scorers on this trait tend to be cheerful, active, talkative, frank, expressive, effervescent, and carefree. They are frequently chosen as elected leaders. They may be impulsive and mercurial.

FACTOR G

EXPEDIENT, Disregards Rules, Feels Few Obligations vs. CONSCIENTIOUS, Persevering, Proper, Moralistic, Rule-bound

(Weaker superego strength)

People who score low on Factor G tend to be unsteady in purpose. They are often casual and lacking in effort for group undertakings and cultural demands. Their freedom from group influence may lead to antisocial acts, but at times makes them more effective, while their refusal to be bound by rules causes them to have less somatic upset from stress.

(Stronger superego strength)

People who score high on Factor G tend to be exacting in character, dominated by sense of duty, persevering, responsible, planful, "fill the unforgiving minute." They are usually conscientious and moralistic, and they prefer hard-working people to witty companions. The inner "categorical imperative" of this essential superego (in the psychoanalytic sense) should be distinguished from the superficially similar "social ideal self" of Q_3+.

FACTOR H

SHY, Restrained, Threat-sensitive, Timid vs. VENTURESOME, Socially bold, Uninhibited, Spontaneous

(Threctia)

Individuals who score low on this trait tend to be shy, withdrawing, cautious, retiring, "wallflowers." They usually have inferiority feelings and tend to be slow and impeded in speech and in expressing themselves. They dislike occupations with personal contacts, prefer one or two close friends to large groups, and are given to keeping in contact with all that is going on around them.

(Parmia)

Individuals who score high on Factor H are sociable, bold, ready to try new things, spontaneous, and abundant in emotional response. Their "thick-skinnedness" enables them to face wear and tear in dealing with people and grueling emotional situations, without fatigue. However, they can be careless of detail, ignore danger signals, and consume much time talking. They tend to be "pushy" and actively interested in the opposite sex.

FACTOR I

TOUGH-MINDED, Self-reliant, Realistic, No-nonsense vs. TENDER-MINDED, Intuitive, Unrealistic, Sensitive

(Harria)

People who score low on Factor I tend to be tough, realistic, "down-to-earth," independent, responsible, but skeptical of subjective, cultural elaborations. They are sometimes unmoved, hard cynical, smug. They tend to keep a group operating on a practical and realistic "no-nonsense" basis.

(Premsia)

People who score high on Factor I tend to be emotionally sensitive, day-dreaming, artistically fastidious, and fanciful. They are sometimes demanding of attention and help, impatient, dependent, temperamental, and not very realistic. They dislike crude people and rough occupations. In a group, they often tend to slow up group performance and to upset group morale by undue fussiness.

FACTOR L

TRUSTING, Adaptable, Free of jealousy, Easy to Get on With vs. SUSPICIOUS, Self-opinionated, Hard to Fool, Skeptical, Questioning

(Alaxia)

The person who scores low on Factor L tends to be free of jealous tendencies, adaptable, cheerful, uncompetitive, concerned about others, a good team worker. They are open and tolerant and usually willing to take a chance with people.

(Protension)

People who score high on Factor L tend to be mistrusting and doubtful. They are often involved in their own egos and are self-opinionated and interested in internal, mental life. Usually they are deliberate in their actions, unconcerned about other people, and poor team members.

N.B. This factor is not necessarily paranoia. In fact, the data on paranoid schizophrenics are not clear as to typical Factor L value to be expected for them.

FACTOR M

PRACTICAL, Careful, Conventional, Regulated by External Realities vs. IMAGINATIVE, Careless of Practical Matters, Unconventional, Absent-minded

(Praxernia)

Low scorers on Factor M tend to be anxious to do the right things, attentive to practical matters, and subject to the dictation of what is obviously possible. They are concerned over detail, able to keep their heads in emergencies, but are sometimes unimaginative. In short, they are responsive to the outer, rather than the inner, world.

(Autia)

High scorers on Factor M tend to be unconventional, unconcerned over everyday matters, self-motivated, imaginatively creative, concerned with "essentials," often absorbed in thought, and oblivious of particular people and physical realities. Their inner-directed interest sometimes lead to unrealistic situations accompanied by expressive outbursts. Their individuality tends to cause them to be rejected in group activities.

FACTOR N

FORTHRIGHT, Natural, Genuine, Unpretentious	vs.	SHREWD, Calculating, Socially Alert, Insightful
(Artlessness)		(Shrewdness)
Individuals who score low on Factor N have a lot of natural warmth and a genuine liking for people, are uncomplicated and sentimental, and are unvarnished in their approach to people.		Individuals who score high on Factor N tend to be polished, experienced, and shrewd. Their approach to people and problems is usually perceptive, hardheaded, and efficient, an unsentimental approach to situations, an approach akin to cynicism.

FACTOR O

UNPERTURBED, Self-assured, Confident, Secure, Self-satisfied	vs.	APPREHENSIVE, Self-reproaching, Worrying, Troubled
(Untroubled adequacy)		(Guilt proneness)
Persons with low scores on Factor O tend to be unruffled, with unshakable nerve. They have a mature, unanxious confidence in themselves and their capacity to deal with things. They are resilient and secure, but to the point of being insensitive of when a group is not going along with them, so that they may evoke antipathies and distrust.		Persons with high scores on factor O have a strong sense of obligation and high expectations of themselves. They tend to worry and feel anxious and guilt-stricken over difficulties. Often they do not feel accepted in groups or free to participate. High Factor O score is very common in clinical groups of all types (see Handbook).

FACTOR Q_1

CONSERVATIVE, Respecting Established Ideas, Tolerant of Traditional Difficulties

vs.

EXPERIMENTING, Liberal, Analytical, Likes Innovation

(Conservatism)

Low scorers on Factor Q_1 are confident in what they have been taught to believe, and accept the "tried and true," despite inconsistencies, when something else might be better. They are cautious and compromising in regard to new ideas. Thus, they tend to oppose and postpone change, are inclined to go along with tradition, are more conservative in religion and politics, and tend not to be interested in analytical "intellectual" thought.

(Radicalism)

High scorers on Factor Q1 tend to be interested in intellectual matters and to have doubts on fundamental issues. They are skeptical and inquiring regarding ideas, either old or new. Usually they are more well informed, less inclined to moralize, more inclined to experiment in life generally, and more tolerant of inconvenience and change.

FACTOR Q_2

GROUP ORIENTED, A "Joiner" and Sound Follower

vs.

SELF-SUFFICIENT, Prefers Own Decision, Resourceful

(Group adherence)

Individuals who score low on Factor Q_2 prefer to work and make decisions with other people and like and depend on social approval and admiration. They tend to go along with the group and may be lacking in individual resolution. They are not necessarily gregarious by choice; rather they might need group support.

(Self-sufficiency)

Individuals who score high on Factor Q_2 are temperamentally independent, accustomed to going their own way, making decisions and taking action on their own. They discount public opinion, but are not necessarily dominant in their relations with others (see Factor E); in fact, they could be hesitant to ask others for help. They do not dislike people, but simply do not need their agreement or support.

FACTOR Q_3

UNDISCIPLINED SELF-CONFLICT, Careless of Protocol, Follows Own Urges	vs.	CONTROLLED, Socially Precise, Following Self-image, Compulsive
(Low integration)		(High self-concept control)
People who score low on Factor Q_3 will not be bothered with will control and have little regard for social demands. They are impetuous and not overly considerate, careful, or painstaking. They may feel maladjusted, and many maladjustments (especially the affective, but not the paranoid) shows Q_3-.		People who score high on Factor Q_3 tend to have strong control of their emotions and general behavior, are inclined to be socially aware and careful, and evidence what is commonly termed "self-respect" and high regard for social reputation. They sometimes tend, however, to be perfectionistic and obstinate. Effective leaders, and some paranoids, are high on Q_3.

FACTOR Q_4

RELAXED, Tranquil, Torpid, Unfrustrated	vs.	TENSE, Frustrated, Driven, Restless, Overwrought
(Low ergic tension)		(High ergic tension)
Individuals who score low on Factor Q_4 tend to be sedate, relaxed, composed, and satisfied (not frustrated). In some situations, their oversatisfaction can lead to laziness and low performance, in the sense that low motivation produces little trial and error. Conversely, high tension level may disrupt school and work performance.		Individuals who score high on Factor Q4 tend to be tense, restless, fretful, impatient, and hard driving. They are often fatigued but unable to remain inactive. In groups they take a poor view of the degree of unity, orderliness, and leadership. Their frustration represents an excess of stimulated, but undischarged, drive.

DESCRIPTIONS OF SECOND ORDER FACTORS

FACTOR Q_I

Low Score Direction vs. High Score Direction

INTROVERSION

The person who scores low on Factor Q1 tends to be shy, self-sufficient, and inhibited in interpersonal contacts. This can be either a favorable or unfavorable finding, depending upon the particular situation in which the person is expected to function; e.g., introversion is a favorable predictor of precision workmanship.

EXTRAVERSION

The person who scores high on this factor is a socially outgoing, uninhibited person, good at making and maintaining interpersonal contacts. This can be very favorable in situations that call for this type of temperament, e.g., salesmanship, but should not be considered necessarily favorable as a general predictor, e.g., of scholastic achievement.

FACTOR Q_{II}

LOW ANXIETY (Adjustment) vs. HIGH ANXIETY

People who score low on this factor tend to be those whose lives are generally satisfying and those who are able to achieve those things that seem to them to be important. However, an extremely low score can mean lack of motivation for difficult tasks, as is generally shown in studies relating anxiety to achievement.

The people who score high on this factor are high on anxiety as it is commonly understood. They need not be neurotic, since anxiety could be situational, but it is probable that there are some maladjustments, i.e., they are dissatisfied with the degree to which they are able to meet the demands of life and to achieve what they desire. Very high anxiety is generally disruptive of performance, and productive of physical disturbances.

FACTOR Q_{III}

TENDER-MINDED EMOTIONALITY	vs.	TOUGH POISE
Individuals who score low on Factor QIII are likely to be troubled by pervasive emotionality, and may be of a discouraged, frustrated type. They are, however, sensitive to the subtleties of life, likely to be artistic and rather gentle. If they have problems, they often involve too much thought and consideration before action is taken.		Individuals who score high on this factor are likely to be enterprising, decisive, and resilient personalities. However, they are likely to miss the subtle relationships of life, and to orient their behavior too much toward the obvious. If they have difficulties, they are likely to involve rapid action with insufficient consideration and thought.

FACTOR Q_{IV}

SUBDUEDNESS	vs.	INDEPENDENCE
People who score low on Factor QIV are group dependent, chastened, passive personalities. They are likely to desire and need support from other persons, and likely to orient their behavior toward persons who give such support.		People who score high on this factor tend to be aggressive, independent, daring, incisive people. They will seek those situations where such behavior is at least tolerated and possible rewarded, and are likely to exhibit considerable initiative.

Clearly, the above descriptions are not only brief suggestions as to the nature of the factors, but they should be helpful to the reader of this MANUAL. More complete discussion and consideration of research findings can be found in the HANDBOOK and its bibliography. The HANDBOOK also contains descriptions of several methods by which personality factor patterns can be converted into predictive formulas, with examples of such formulas from research involving the prediction of socially important criteria.

FACTOR V

LOW CONTROL vs. HIGH CONTROL

People who score low on this factor typically do not act according to others values or out of a sense of duty. They tend to be nonconformists who do not hesitate to bend rules, or who develop their own set of rules whenever it is expedient to do so. These are flexible people, yet because they tend to follow their own impulses, they may not be as self-disciplined as some situations may require. Further, they may be perceived as unreliable at times, because the rules by which they operate may not be clear to others.

People who score high on this factor typically have strong super-ego controls; that is, they have internalized the rules of the milieu in which they function. Hence, they tend to conform to expectations that others have of them or to expectations that they have of themselves. They are quite reliable because they do not "bend the rules"; however, they may be so controlled as to be perceived by others as rigid or moralistic.

FACTOR VI

NEUROTICISM vs. ADJUSTMENT

People who score low on this composite have traits that indicate the possibility of neurotic maladjustment. They tend to be apprehensive and emotionally reactive. Beyond these anxiety-related traits, however, low scorers are typically self-effacing and sensitive. This combination of attributes makes it likely that a person who gets a low score would find it difficult to cope with daily life.

People who score high on this composite tend to be well adjusted. They are typically self-confident and assertive; they are relaxed, adaptive, and flexible. Thus, they would be expected to have little difficulty in coping with daily life. For more detail on neuroticism, see the Handbook for the 16PF.

FACTOR VII

LOW LEADERSHIP	vs.	HIGH LEADERSHIP
People who get a low score on this composite tend to lack the attributes typically found in good leaders. Low scorers usually are not good at asserting themselves. They tend to shy away from conflict, and may also lack the self-control needed to meet deadlines and group productivity goals.		People who get a high score on this composite tend to have the traits that are expected of leaders. These people are usually sociable, relaxed, assertive, and self-assured. Overall, they would have the emotional maturity needed to resolve conflicts while maintaining an emphasis on getting things done.

FACTOR VIII

LOW CREATIVITY	vs.	HIGH CREATIVITY
People who score low on this scale are tough-minded and practical. They tend to stick to tried-and-true ways of doing things rather than trying new ways. They would not spend time generating ideas, but would want workable, practical solutions. These people would be better at implementing a solution than coming up with one.		People who score high on this scale are imaginative and experimenting. Creative people are usually self-sufficient; often, though not necessarily, they are rather serious and not very outgoing preferring to spend time in thought rather than with people. Sometimes high scorers are so imaginative that they cannot see the practical limitations on implementing a creative idea.